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THE BOERNER-LUKENS WASSERMANN TEST WITH SPECIAL REFERENCE TO SPINAL FLUIDS AND FACTORS INFLUENCING SENSITIVITY*

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Difficulties encountered in spinal fluid Wassermann tests are the occurrence of the false positives and prozone reactions and incomplete hemolysis of the antigen control tube. We (1) attributed these difficulties to the lack of protein, and recommended the addition of egg albumin to the spinal fluid as a remedy. This procedure overcame these difficulties with but a slight decrease in sensitivity.

At the Washington Serological Conference we conducted the Boerner-Lukens Wassermann with spinal fluid with the addition of egg albumin. Complement which had been pretested as recom-

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mended by Giordano (2) was used. The results show a very low sensitivity in spite of the fact that the blood Wassermanns conducted at the same time showed a very satisfactory sensitivity.

A series of 150 spinal fluids have since been tested to determine the cause of the low sensitivity of the test at the Washington Conference. In this series of tests each spinal fluid was tested with two different antigens, with and without the addition of egg albumin. Readings were made after one half hour and one hour incubation.

From the results of this study it is very obvious that the use of egg albumin desensitized the test. The effect of the egg albumin was greater when used with the Antigen B. In the tests without egg albumin the antigen control cleared and no false reactions occurred. Pretested complement was used in these tests. It appears that the use of egg albumin is contraindicated when a satisfactory complement is employed and further the difficulties encountered with spinal fluid Wassermanns is in all probability not due to the lack of protein but to the use of defective complement.

Antigen A was more sensitive than antigen B in this series. Previous studies of these antigens did not show this difference, due no doubt, to the fact that the complement used at that time was not pretested. Antigen A differed from Antigen B in that the latter was washed with 20 volumes of acetone before extraction.

The time of reading the tests will, as shown in this series, affect its sensitivity. We have in the past recommended reading at the end of one hour. This practice was established before we started pretesting our complement. When using a satisfactory complement, it is safe to read the test at the end of one-half hour and benefit by the slight increase in sensitivity.

For the purpose of determining the specificity and sensitivity of the Boerner-Lukens spinal fluid Wassermann performed with pretested complement without the addition of egg albumin and read at the end of one-half hour, three series of spinal fluids were examined as follows:

Series 1.—267 spinal fluids from the Laboratories of the Pennsylvania Department of Health, after they had been tested

by the Kolmer Wassermann, were tested by the Boerner-Lukens technic. The interval between the two tests was 3 to 10 days. We were unable to study specificity with this series because clinical data was not available. However, it was satisfactory for comparing the sensitivity of the two procedures.

Series 2.—124 spinal fluids from the Philadelphia General which had been tested by the Kolmer Wassermann were again tested by the Boerner-Lukens technic. The interval between the two tests was 3 to 7 days. Sensitivity and specificity could be studied with this series as clinical evaluation was possible.

Series 3.—158 spinal fluids were tested at the Graduate Hospital by the Boerner-Lukens technic. This series gives additional data relative to specificity only.

The Kolmer Wassermann gave 71.7 per cent sensitivity and 100 per cent specificity at the Washington Serological Conference. The tests were performed by Miss C. Richter. In series 1, Miss Richter performed the Kolmer tests on the spinal fluids exactly as they were performed at the Washington Conference. Therefore it is safe to assume that the sensitivity of the Kolmer tests in this series is comparable to that obtained at the Washington Conference. Based on this assumption the results of this series, which gives the Boerner-Lukens 64 positives and three doubtfuls and the Kolmer 68 positives and five doubtfuls, indicates a sensitivity of 66.6 per cent for the Boerner-Lukens Wassermann performed without the use of egg albumin and read at the end of one-half hour.

In series 2 the Boerner-Lukens gave 55 positives and 2 doubtful and the Kolmer gave 55 positives and no doubtfuls. No false positives were detected in either test. In this series there was no significant difference in sensitivity or specificity between the two tests.

No false positive reactions were detected in series 3.

The slight difference in sensitivity in series 1 may have been due to the fact that the fluids were heated a second time for the Boerner-Lukens test. This explanation is supported by the fact that there was no significant difference in sensitivity in series 2 which was not heated the second time.

The low sensitivity (43.7%) of the Boerner-Lukens Wassermann test with spinal fluid at the Washington Conference was due

principally to the addition of egg albumin to the spinal fluid. The importance of having a good antigen-complement combination as shown by Harris (3) cannot be overemphasized. This can be accomplished by prestesting the complement with the antigen that is to be used with it. This procedure is recommended in place of using defective complement and depending upon the addition of egg albumin to overcome the difficulties that may be encountered. By using a satisfactory antigen-complement combination without the addition of egg albumin the Boerner-Lukens Wassermann test with spinal fluid will have a high degree of sensitivity and free of the usual difficulties encountered when using defective complement.

Factors Influencing Sensitivity

Since the completion of our studies of the sensitivity of the spinal fluid Wassermann our attention has been directed to a study of the factors which influence the sensitivity of the blood Wassermann test. The non-specific reactions reported by Girodano and the subsequent report by Harris showing the relationship of this reaction to certain types of antigens, has opened a new field for investigation. It is hoped that further studies of this important problem will furnish us with a better understanding of the reactions which occur in the Wassermann test.

The following is a list of the principal factors which should be considered as having some relation either directly or indirectly to sensitivity:

1. Saline solution.
2. Sheep cells.
3. Hemolysin.
4. Complement.
    - Hemolytic activity.
    - Fixability.
    - Non-specific fixation.
    - Dose.
5. Antigen.
    - Lipid content.
    - Cholesterol content.
    - Anticomplementary properties.
    - Non-specific reactions with complement.
    - Dose.

6. Proteins.
   Complement.
   Serum.
7. Inactivation.
   Temperature.
   Time.
8. Primary incubation,
   Time.
   Temperature.
9. Secondary incubation,
   Time.
   Temperature.
10. Readings.

Saline solution: In some places the municipal water supply is very satisfactory for preparing saline solution. This is particularly true of Philadelphia, Pa. Since the water may vary with the seasons it is advisable to use distilled water to which a buffer has been added. Unbuffered distilled water should not be used as the water will vary depending upon the efficiency of the still, and the pH will vary due to absorption of CO_2. If the saline is properly prepared and buffered, it will have little or no influence on the sensitivity of the test.

Sheep cells: It is advisable to use cells from sheep whose blood has been proven to be satisfactory. In Philadelphia we have what we call a sheep cell center located at the Veterinary School of the University of Pennsylvania. Sheep have been selected and are kept on special diet the year around. Many hospitals in Philadelphia and vicinity obtain their cells from this source. Cells are available from commercial firms and can be shipped a long distance. We have had cells shipped from Kansas by mail and when received they were in perfect condition and proved very satisfactory when used in our routine test. Slaughter house cells have not proven so satisfactory in our hands.

Hemolysin: The only requirement of the hemolysin is that it will produce complete hemolysis with complement within the range of dilutions recommended for the technic employed. Any effect it may have on sensitivity will be due to the dose employed rather

than the reagent itself. It is very stable and when properly preserved will keep for years.

Complement: A satisfactory complement is one that will give a satisfactory titer with the hemolytic system employed and will give good fixation with the reagin in positive serum and little or no non-specific fixation with the antigen to be used in the test. The first of these requirements is taken care of by the usual preliminary titration of complement or hemolysin. The second can be determined by testing positive sera of various strengths. The third is determined by testing the complement in the presence of antigen using the same primary incubation period as used in the test property.

The smaller the number of pigs used in complement pools the greater will be the difference between pools. We, therefore, recommend that large pools be used which can be preserved chemically or by drying in the frozen state (lyophil or lyovac).

The dose of complement recommended for use is always in excess of that required to give complete hemolysis. This is to allow for any non-specific fixation or deterioration and if non-specific fixation is very strong it may even prevent the antigen control from completely hemolyzing and will increase the sensitivity of the test, and in such cases there is a risk of false positive reactions.

Antigen: A satisfactory antigen is one which will give satisfactory fixation of the complement in the presence of reagin with a minimum of non-specific fixation when tested with complement alone.

The sensitivity of an antigen is dependent upon its lipid and cholesterol content. The sensitivity may be changed by increasing or decreasing the lipid or cholesterol content and these changes are correlated with changes in the strength of non-specific fixation. It may be that sensitivity is dependent upon both specific and non-specific reactions, e.g. the stronger the non-specific reaction of an antigen, the less complement has to be fixed to cause complete inhibition of hemolysis.

The dose of antigen should be the optimum for the technic employed. Too large or small a dose will desensitize the test. The optimum dose may be determined by a method of titration de-

scribed by the authors. In the case of the Boerner-Lukens technic the optimum dose for all antigens irrespective of their lipid or cholesterol content has been found to be between 1:800 and 1:1200 and a dose of 1:1000 is recommended. The authors believe it better that the technician use this dose of 1:1000 rather than attempt to determine the dose by titration.

Protein: The addition of protein to the test tends to decrease its sensitivity. This desensitizing effect is probably due to the protection of complement against non-specific fixation by the antigen. When antigen-complement combinations are used that give non-specific reactions more protein may be added for the purpose of preventing an excess of such reactions and by so doing allow a sufficient excess of unfixed complement to avoid false positive reactions. We believe that this addition of protein is unnecessary when the antigen used does not give an excess of non-specific reactions.

The serum to be tested will by virtue of its protein influence the sensitivity of the test. Not only will the effect of the protein vary with different sera but the presence of anticomplementary substances will also vary, thus making it practically impossible to adjust a hemolytic system that is optimum for all sera.

Inactivation: It is necessary to heat the sera to be tested for the purpose of destroying anticomplementary substances. The higher the temperature for a given length of time the greater will be the destruction of the antibody (reagin). It also holds true that the longer the time at a given temperature the more the destruction of the antibody. Up to a certain limit the time and the temperature may be varied with satisfactory results. For the Boerner-Lukens test we recommend that the sera be heated at 56° C. for one-half hour or at 58° C. for ten minutes.

It is extremely important that great care be exercised in this procedure as any variation in the time or the temperature will influence the sensitivity of the test. Because of the lag period in heating sera due to the time required to heat the tube and bring the sera to the desired heat we do not recommend heating for any shorter interval than 10 minutes and on account of the possibility of excess destruction of antibodies (reagin) we limit the temperature to 58° C.

Primary incubation: The longer the time of incubation the greater the opportunity for fixation of the complement. The extension of time also increases the chances of non-specific reactions and deterioration of the complement. Low temperatures favor (6° to 8° C.) the fixation of complement by the lipid antigen used in the Wassermann test.

Secondary incubation: The length of time for secondary incubation depends upon the adjustment of the hemolytic system. The time interval between the clearing of the controls and the readings is most important. *Reading Reactions:* The sooner they are read the greater the sensitivity. Since sera vary in their anticomplementary properties and antigens may retard the reaction to some extent it is not advisable to read too soon after the controls have cleared. Different time intervals for reading are recommended by the authors of the various technics.

Readings may be reported as negative, doubtful, or positive. Some authors prefer to subdivide the positives according to the strength of the reaction into very weak, weak, and strong. Still others report the actual reading according to the plus system, namely plus 1, plus 2, plus 3 and plus 4.

Sensitivity will be influenced slightly by the interpretation of the reactions, e.g. one author may interpret a plus 1 reaction as doubtful, whereas another would consider it positive.

It is advisable when a large number of sera are tested to arrange the controls in the first rack and space the addition of cells so that there will be a time interval between each rack. This procedure will permit the reading of each rack as they are removed from the water bath and is to be preferred to the common practice of reading all racks at one time.

Discussion

In our discussions we speak of defective complement, non-specific fixation or reactions, and deterioration of complement. As a matter of fact we do not know exactly what does happen. The results of some of our experiments make us wonder if the trouble is in the antigen or the complement, e.g. if you use the right complement, the antigen is all right—if we use the right antigen, then the complement is all right. We have confirmed the observation

of Harris who showed that a complement may be defective when used with one antigen but not so when used with another. In addition we have caused the non-specific reaction to increase and decrease by varying the lipid or cholesterol content of the antigen used. This would indicate that neither the complement nor the antigen are defective and the difficulties encountered are probably due to improper adjustment of the two.

Conclusion

1. The addition of egg albumin to spinal fluid in the Boerner-Lukens Wassermann test was shown to have a marked desensitizing effect when pretested complement was employed.

2. In a series of 549 spinal fluid Wassermanns performed by the Boerner-Lukens method without egg albumin, using pretested complement and read at the end of one-half hour, gave a sensitivity and specificity comparable to the Kolmer technic performed at the same time.

3. Factors influencing the specificity of the Wassermann test are discussed.

We wish to thank Miss Carola Richter and Dr. Brant Rose, whose cooperation in supplying spinal fluids and data has made this study possible.

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Table 1

BOERNER-LUKENS WASSERMANN TEST
WITH 150 SPINAL FLUIDS

Reactions	Without Egg Albumin				With Egg Albumin**			
	Antigen A		Antigen B		Antigen A		Antigen B	
	½ hr.	1 hr.	½ hr.	1 hr.	½ hr.	1 hr.	½ hr.	1 hr.*
+4 Pos.	47	47	45	39	45	44	35	29
+3 Pos.	3	1	1	5	1	1	0	4
+2 Pos.	2	0	0	2	0	0	2	1
+1 Doubt.	1	1	1	0	3	0	6	2
± Doubt.	0	1	1	1	0	0	1	1
Negative	97	100	102	103	101	105	106	113
Sensitivity	71.7	66.9	64.1	63.5	64.8	61.4	55.3	48.4

*Procedure used at Washington Conference.

**0.1cc of 50% egg albumin added to each tube.

Table 2

COMPARISON OF THE BOERNER-LUKENS WASSERMANN WITHOUT EGG ALBUMIN AND THE KOLMER WASSERMANN WITH EGG ALBUMIN IN A SERIES OF 391 SPINAL FLUID TESTS

Wassermann technic	Result	Spinal Fluid Series 1	2	Total
Boerner-Lukens Kolmer	Neg. Neg.	192	66	258
Boerner-Lukens Kolmer	Pos. Pos.	62	53	115
Boerner-Lukens Kolmer	Pos. Doubt.	2	0	2
Boerner-Lukens Kolmer	Pos. Neg.	0	2	2
Boerner-Lukens Kolmer	Doubt. Pos.	1	1	2
Boerner-Lukens Kolmer	Doubt. Neg.	2	1	3
Boerner-Lukens Kolmer	Neg. Pos.	5	1	6
Boerner-Lukens Kolmer	Neg. Doubt.	3	0	3
	Total	267	124	391

Table 3

SPECIFIC AND NON-SPECIFIC FIXATION OBTAINED BY VARYING THE LIPID AND CHOLESTEROL CONTENT OF AN ANTIGEN

Antigen dilution	Cholesterol 0.1%		0.2%		0.4%		0.8%	
	*	**						
1 part antigen	–		–	–	–		1	
	–	–	–	–	–	–	2	2
1 part alcohol	R	–	–	–	–	–	4	4
	4	–	4	R	3	R	4	4
1 part antigen	–		–		–		R	
	–	–	R	–	±	–	1	–
3 parts alcohol	R	–	4	–	4	–	4	3
	4	R	4	±	4	1	4	4
1 part antigen	–		R		1		±	
	R	–	2	–	3	–	3	4
7 parts alcohol	4	–	4	–	4	1	4	4
	4	R	4	1	4	2	4	4
1 part antigen	R		±		1		2	
	R	–	2	–	4	–	4	R
15 parts alcohol	3	–	4	R	4	4	4	4
	4	R	4	2	4	4	4	4

* Specific fixation with pos. serum

Serum dilutions	
Pos.	Neg.
1	7
1	4.7
1	3
1	1.8

** Non-specific fixation with complement.

Complement dilutions
1 : 30
1 : 60
1 : 120

OPPORTUNITIES AND RESPONSIBILITIES IN MEDICAL TECHNOLOGY

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The tragedy of untimely death prevented the presentation last year of this subject by my esteemed colleague, Dr. Meyer Bodansky. His was a keen and analytical mind especially capable of penetrating into and clarifying the problems confronting your organization. It is with humbleness, therefore, that I offer you, on this same topic, the viewpoints of a physician who is interested in your welfare and who feels that he has, in a measure, some understanding of the aims and purposes of your society.

In order to gain a better perspective of the present status of medical technology, it might be instructive to outline briefly the historical relationships of medical technology to the laboratory of clinical pathology.

At the turn of the century medical science had developed to the point where laboratory methods were found useful in the diagnosis and treatment of disease. A few clinical laboratories were established in medical centers in this country by far-sighted leaders in medicine. For example, in this city two were founded—the William Pepper Laboratory of Clinical Medicine at the University of Pennsylvania in 1895 and the Ayer Laboratory at the Pennsylvania Hospital founded in 1898. The pros and cons for the creation of such laboratories were, however, still under discussion. For example, the Journal of the American Medical Association in 1900 published an article by Camac* in which this author tried to dispel the objections raised to the development of hospital clinical laboratories. In retrospect, his analysis is unexpected. He classified the objections to establishing hospital laboratories essentially

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* Referred to by Mr. Bodansky.

under four headings: (1) the laboratories were scientific luxuries; (2) they required space; (3) they were expensive; (4) clinical tests were too time-consuming. Minor objections included the apprehensions that patients might drink some of the poisonous laboratory reagents and that some of the staff members might appropriate laboratory apparatus. In dispelling the objection that the hospital laboratory was too expensive, Camac blandly advised, "the maintenance of the laboratory can well be accomplished on $50 a year."

Initially the work of the laboratory was undertaken either by physicians interested in gross morbid anatomy, or by internes and younger members of the house staff. With increasing recognition of the value of the laboratory to clinical medicine, physicians attached to these laboratories were frequently given part-time positions and in certain instances were provided with honoraria for their services. It was in this early period that the chemistry division of the hospital laboratory was developed. Initially this branch of chemistry employed the older methods of quantitative analysis but it was soon compelled to develop its own especial methods and procedures. The development by this division of micro-methods of blood and serum analysis afforded a great opportunity for service to medicine and lent considerable impetus to the movement for increasing the facilities of clinical laboratories.

With the increasing demands upon the laboratory, full-time service was required of laboratory physicians, thus initiating the specialty of clinical pathology. The American Society of Clinical Pathologists was organized in 1922 and was instrumental in setting high standards and qualifications for physicians charged with the responsibility of directing clincal laboratories. Through the efforts of this organization the specialty of clinical pathology was brought to a position of dignity and respect.

The need was no less recognized for providing trained technical workers to assist clinical pathologists in their endeavors. The technologists at first were obtained from the ranks of educated young men and women who worked not infrequently on a volunteer basis. As might have been anticipated, there soon arose the conception of medical technology as a profession and as a means of livelihood. The necessity for requiring and maintaining high

scholastic standards of technicians attached to the laboratory became more and more apparent and led the American Society of Clinical Pathologists in 1928 to establish the registry of technicians. The aims and purposes of the registry were recognized and approved by the American Medical Association and courses of instructions leading to the degree of Bachelor of Science in Medical Technology were soon established in leading universities in this country. Thus, the important ancillary position of the medical technologist in the field of laboratory medicine became firmly fixed. The present day status of the clinical laboratory and its personnel obviously requires no portrayal to you.

This brief sketch should indicate at once that since your vocation is a young one, it becomes immediately subjected to obstacles, heart-pains, and disappointments that almost invariably beset pioneers in any field of endeavor. The present period of adjustment should not, however, be permitted to become a source of discouragement, but rather should serve as a challenge.

Of prime importance in any consideration of opportunities and responsibilities is a clear conception of the relationship between the clinical pathologist and the medical technologist. It is well recognized that in human affairs the one factor that can effectively bind individuals or groups is a common purpose. In the case of the clinical pathologists and the medical technologists this purpose is acknowledged as a desire to be of service in the diagnosis, treatment, and prevention of disease. Since the fundamental aims of both groups are identical, the relationship must be based upon mutual trust, respect, and confidence and upon a recognition of inter-dependence. The clinical pathologist accepts the responsibility for interpreting the results and working out the details of analyses to be done; the medical technologist, as an aide to the clinical pathologist, faithfully carries out these details and reports to the clinical pathologist concerning what has been done. To assure complete understanding between the two groups, it is essential that there exist a spirit of free and informal communication. The clinical pathologist should make himself accessible to the medical technologist at all times; and the medical technologist, in turn, is obligated to seek help from him in the solution of any laboratory problem that may be presented.

In addition to making analyses, the medical technologist is expected to understand the reasons for making them. However, the attainment of this knowledge does not provide for departure from the well-established principles of ethics; namely, not to divulge the results of analyses, not to diagnose, interpret, or prescribe. There never was any occupation in which all members completely lived up to its code of ethics and our concern, for the present, is not with this small, untrustworthy minority.

Another important responsibility should be an insistence on maintaining high scholastic standards in schools offering instruction in medical technology. To foster a program towards better training is also a duty and an obligation of every clinical pathologist. There are no short-cut methods for adequate training. The selection of students entails great care since in no field are qualities of intellectual honesty and scientific skill more essential. Certification in medical technology should signify much more than the ability to pass an examination to meet specified requirements. As with every other scientific endeavor, maintenance of proficiency in this field requires continuous study.

It is possible that the present war situation may necessitate certain curtailments in training; nevertheless, it is my feeling that in so far as possible every effort should be made to maintain existing standards. Education constitutes one of our country's best defenses, so that it is obvious that caution should be exercised before sacrificing these standards.

An opportunity and responsibility lies in the education of the public toward a better understanding of the important services rendered by laboratory workers to the public welfare. The patient may never lay his eyes on the laboratory workers, none the less he may rest his life in their hands. It is probably a safe prediction that the physician of the future will depend on the laboratory to an even greater extent than at present.

To some of you opportunity will be afforded for assistance in research, particularly in methodology. In a real sense the application of clinical methods has been the cement which has bound together the very foundations of our knowledge of disease. One might ponder as to whether our knowledge of insulin could have

been possible without the timely improvement in methods of analysis for blood sugar. The best methods of analyzing for sugar fifty years ago required from 100 to 500 c.c. of blood and time-consuming analytical work. The development of micro-methods of analysis, first by Bang in 1913, made it possible to make analyses on 1 c.c. or less of blood within a half hour. Thus, one might very well ponder upon what the state of our knowledge in diabetes really would be, were it not for this epoch-making advance in methodology. After all, the method is everything; one cannot advance beyond the method.

The motives that impel individuals toward medical technology as a career may range from economic considerations to humanitarian impulses. To those seeking mainly economic advancement, however, it should be pointed out that in certain sections of the country the salary level is not commensurate with the degree of training that should be required. This is clearly indicated in the recent survey of salary ranges for technicians, published in Modern Hospital, November, 1941. After the present emergency period, it almost goes without saying that if your organization should decide to formulate principles for securing mutual protection, the reasons for seeking such protection would be no different from those that inspire all groups with mutual interests to join together. It is recognized that a sense of security invariably induces a higher standard of performance and efficiency. In addition, it might also be mentioned that the desirability of fixing time limits for work is a principle of employment which, in general, is no longer disputable.

At this time all minds are centered about the war. The question uppermost in all of our thinking is how best can we serve in this great struggle? Your field affords an especially important opportunity for service. From correspondence and discussion, however, I realize that many of you are painfully conscious of the discrimination between technologists as civilians and nurses as army officers. One of your members in a recent letter emphasizes the point that your risks are equal to the nurse, your duties in emergencies are no less and your training analogous. It is hoped that a correction of this situation may soon be brought about.

Until such time, however, it is important for the welfare of our country that there be no diminution in our efforts and desire to serve in any capacity.

It is inevitable that the war will bring about many changes in your vocation. These need not necessarily be deplored, for in the words of Hugh Cabot—"It is probably a safe assertion that the chief fascination in the business of living is change. On the whole this is fortunate since nothing other than death and taxes is more certain than that the world has changed, is changing and will inevitably continue to change."

AN UNRECORDED MEMBER OF THE GENUS EBERTHELLA*

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A previously undescribed bacillus was obtained on five occasions from the feces, blood, and urine of a patient with an enteric fever. The organism was recovered on three occasions from the stool, once from the blood, and once from the urine. After a stormy course, the patient recovered and has been in fairly good health since.

Case History

The patient was first seen January 31, 1938, when admitted to the surgical service following a fall from a truck. He was at that time suffering from contusions of the abdomen and both testicles, and possible internal injuries. History and physical examination at that time was essentially negative except for the injuries mentioned and he was discharged in three days considerably improved.

The patient was next seen December 30, 1939, at which time he was admitted complaining of nausea, vomiting blood, epigastric pain, and dysentery. Physical examination at this time revealed a moderately well developed and nourished white male about the stated age of 31 years. He was in considerable distress and apparently acutely ill. He stated that since his previous admission he had been in a hospital in Columbia, South Carolina, where he was treated for cancer of the stomach. It was later found that he had been treated for gastric ulcer, and a gastro-enterostomy had been done.

During this period of hospitalization from December 30, 1939, to July 6, 1940, his course was an extremely stormy one. His condition on admission was believed to be due to a malfunctioning gastro-enterostomy which was corrected by surgery following

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which he developed broncho pneumonia, postoperative parotitis, optic neuritis, and phlebitis of both legs and thighs and the right arm. During the intervals between complications he continually ran a septic temperature. The white blood count was within the normal range. A moderate degree of secondary anemia was present at all times; and considerable nausea, vomiting and diarrhea persisted.

Agglutinations were negative in all dilutions above 1-20 with Eberthella typhosa, Salmonella paratyphosum, Salmonella schottmulleri, Proteus vulgaris (var X 19), Brucella mellitensis, Brucella abortus, Salmonella enteritidis, Shigella dysenteria (var Shïga), Shigella paradysenteria Varietys Hiss Y, Sonne and Flexner.

On three occasions an organism resembling Eberthella typhosa in some respects, was isolated from the stool. Later during a period of hyperpyrexia following a chill the organism was recovered in pure culture from the blood and urine.

This organism did not agree culturally with any of the recorded members of the Genus Eberthella to which it appeared to belong. The organism was not agglutinated by any of the agglutinating sera for Eberthella typhosa, Salmonella paratyphosa, Salmonella schottmulleri, Proteus vulgaris (var X 19), Salmonella enteritidis, Shigella dysenteria (var Shiga) and the three paradysenterys Hiss Y., Sonne, and Flexner. The patient's serum, however, agglutinated the organism in a dilution of 1-160, rising after three weeks to 1-1280. At no time was any agglutination observed with the patient's serum and any of the classical strains.

An adult rabbit was injected intraperitoneally with 0.1 cc. of an 18 hour broth culture. Within 36 hours the animal showed signs of peritonitis and died 68 hours after the injection.

On autopsy the visceral organs were markedly congested and the peritoneal cavity contained a considerable amount of turbid fluid. A stained smear of the fluid showed the cells to be mostly plasma cells, endothelial cells and lymphocytes. Many bacilli were seen and only a few polymorphoneuclear cells were seen. The spleen was soft and pulpy and many small abscesses were seen throughout the liver. The organism was recovered in pure culture from the peritoneal fluid and from the bile.

A second rabbit was injected intraperitoneally with 1.0 cc. of a merthiolate killed broth culture. The animal suffered a severe reaction but recovered. Five days after the injection the animal was killed and autopsied. No pathology was demonstrated except for a moderate enlargement of the mesenteric lymph nodes. On section these glands showed a marked hyperplasia but no other pathology.

Two rabbits were injected intratracheally with 1 cc. each of an 18 hour broth culture. Both these animals developed a severe enteritis and died, one on the seventh day and one on the ninth day after the injection.

On autopsy ulcerative lesions were seen throughout the small intestines of both. The organism was recovered from the intestinal contents and bile of both and the heart blood of the first.

Two other rabbits were injected subcutaneously with small increasing doses of a merthiolate killed culture, and their sera was tested at weekly intervals for agglutinating titer. After eight weeks a serum was obtained with a titer of 1-2560. This rabbit agglutinating serum failed to agglutinate any of the previously listed organisms except Eberthella typhosa which it agglutinated in a dilution of 1-20. Agglutinin absorption to remove the cross agglutinins was not done.

Attempt was made to infect guinea pigs by intraperitoneal, intratracheal and subcutaneous injection without success. However, three weeks after intratracheal injection with a live culture, the organism was recovered from the feces of one of the pigs. This pig was killed and autopsied but no pathology was demonstrated nor was the organism found in the bile or heart blood.

Repeated attempts were made to isolate a race of bacteriophage, that would lyse the organism, without success.

One of the rabbits used to produce the agglutinating serum was injected intrachealy with 1.0 cc. of a broth culture. After ten days this animal showed no signs of infection and the organism was not demonstrable in the feces. Fifteen days later the same animal was given 5 cc. of living culture intratracheally. Fifteen days later the same animal was given 5 cc. of living culture intra-

tracheally. The animal remained without symptoms but the organism was recovered from the feces on the fourth and eighth days after the injection. Other cultures were negative.

The second animal which had been used to produce agglutinating serum was injected intraperitoneally with 0.1 cc. of virulent culture. Fifteen days later this animal was without symptoms. The injection was repeated with 2.5 cc. of culture. 42 hours later the animal died. When the animal was autopsied it was found that the intestine had been punctured, and a rent in the intestinal wall about a half centimeter in length was found. It was recalled that this animal had struggled violently during the injection and this was probably responsible for the perforation and the ensuing peritonitis. Culture of the exudate showed the injected organism, a beta hemolytic anaerobic streptococcus, staphylococcus aureus and albus and E. coli.

An antigen was prepared from the organism and administered to the patient, starting with a dose of 0.1 cc. and repeating every third day with increasing doses until a dose of 1. cc. was reached. The dose was held at 1.0 cc. until fourteen one cc. doses had been given. The patient suffered no reaction other than a moderate erythema surrounding the site of injection. This usually disappeared in from 36 to 48 hours. The patient said that the site remained moderately sore for three or four days. After the third injection, the patient's temperature began subsiding and on the day of the sixth injection the patient was afebrile and remained so until his discharge. Coincident with the decline in temperature the patient's nausea, diarrhea, and vomiting subsided and he began to showed marked clinical improvement. Culture of the stool on the days of the tenth, twelfth, and fourteenth injections were negative for the organism and the titer of the patient's serum had risen to 1-3500 when tested against the organism.

The patient's convalescence from this point was uneventful and he has remained in fairly good health since.

Study of Organism

In the absence of any classification, I have carried the organism under the arbitrary name of Eberthella X 18,056.

ORGANISM	GELATIN LIQUEFACTION	HYDROGEN SULPHIDE	INDOL	NITRATE REDUCTION	LITMUS MILK	DEXTROSE	LEVULOSE	GALACTOSE	XYLOSE	MALTOSE	RAFFINOSE	DEXTRIN	GLYCEROL	MANNITOL	SORBITOL	LACTOSE	SUCROSE	INULIN	RHAMNOSE	INOSITOL	SALICIN	ARABINOSE	DULCITOL	ISODULCITOL
Eberthella typhosa	—	+	—	+	Slight Acid then Neutral or Alk.	A	A	A	A	A	A	A	A	A	A	A	A	—	—	—	—	—	—	
Eberthella Sp. (Sendai type)	—	?	—	+	Slight Acid then Neutral or Alk.	A	A	A	A	A	A	A	A	A	A	—	—	—	A	—	—	—	—	
Eberthella talavensis	—		+	—	Alk.	A	A	A		—	—	—	A	—	—	—	A	—		—	A	—	—	
Eberthella kandiensis	—		—	—	Slight Acid then Alk.	A	A	A		—	—	—	A	A	—	—	A	—		A	—	—	—	
Eberthella oxyphila	—	+	—	+	Acid with Coag.	A																		
Eberthella bufistientis	—		+		Acid with Coag.	A	A			A	A	—	—	A	—	A	A	—			A	A	—	
Eberthella progenes	—		+		Acid with Coag.	A	A	A		A	A	A	A	A	A	A	A					A	A	
Eberthella tarda	—	+	+	+	Slight Acid	A		A		A				—		A					A			
Eberthella bentotensis	—	+			Acid	A	A	A		A	A	—	A	—	—	A	A	—		A	A	—	A	
Eberthella cedematiens	+		+	+	Acid with Coag. and Peptone	A	A	A		A		A	A	A		A	A			A		A	—	
Eberthella enteriea	+		+	+	Acid later Alk.	A	A			A		A					A							
Eberthella dubia	+		Sl.	+	Acid with Coag.	A																		
Eberthella chylogena	+		—	—	Acid with Coag.	A																		
Eberthella xenopa	+		—	—	No change	A			A															
EBERTHELLA X 18.66	—	+	—	—	Acid with Slow Coag.	A	A	—	—	—	A	—	A	A	A	A	A	—	—	A	—	—	—	

Absence of an indication for any substrate indicates that no reference to action on that substrate is found in the literature.

The organism shows the following characteristics and the appended table will illustrate the differences between it and the recorded members of the Genus Eberthella.

Morphological Characteristics:

Rods occurring single, in pairs, and occasionally in short chains.

Size: 0.5 to 0.6 microns wide by 2.3 to 2.5 microns long.

Motile with peritricheous flagella.

Gram negative.

Cultural Characteristics:

Gelatin stab: Opalescent, thin, white, no liquifaction.

Gelatin plate: Opalescent, elevated, entire, quite small, almost pin point after ten days at 22° C.

Infusion agar: 24 hrs.—Small circular greyish.
73 hrs.—1 mm. dirty greyish yellow stellate.

Kleiglers Iron Agar: Blackening at junction of slant.

Bismuth Sulphite Agar: No growth.

Desoxycholate Agar: Light pink, opaque, mucoid, surrounded by a zone of precipitated desoxycholate.

Desoxycholate Citrate Agar: Scanty, white, opaque.

Infusion broth: Turbid with slight sediment, delicate pellicle after ten days.

Litmus milk: Acid with coagulation (4 to 5 days).

Potato: Slimy grey streak.

Acid but no gas in dextrose, levulose, raffinose, glycerol, mannitol, dulcitol, sorbitol, lactose, sucrose, and inositol.

No action on galactose, xylose, maltose, dextrin, arabinose, adonitol, inulin, rhamnose and salicin.

Indol not formed.

Nitrates not reduced.

No characteristic odor.

Acetylmethylcarbinol not formed.

Facultative aerobic.

Optimum Temperature: 37-40° C.

No variants were observed either in biochemical or colonial characters.

Discussion

The cultural characteristics of this organism appear to place it in the Genus Eberthella, but no similar species is found in the literature. Since no variants are observed and the cultural characteristics are stable over many generations it does not appear that this organism is a variant of any recorded species. The pathogenicity for rabbits seems to have been proved. The organism does not appear to be pathogenic for guinea pigs. Two rabbits appear to have acquired sufficient immunity to enable them to stand fairly large injections of live organisms. The exact role that the organism played in the etiology of the patient's condition is difficult to evaluate; but the clinical improvement under a course of vaccine therapy, a rising serum titer, and the disappearance of the organism from the stool on recovery, leads to the belief that the organism played at least a secondary, if not primary, role as the etiological agent.

Conclusions

An organism apparently a member of the genus Eberthella is described. The organism was isolated from the blood, urine, and feces of a patient with an enteric fever. A description of the organism is not found elsewhere. A table is compiled to show the differences between this organism and the recorded species of this genus.

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26. Eberthella bentotensis, Ibid, page 227.
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28. Eberthella dubia, Ibid, page 225.
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34. Eberthella oxyphila, Ibid, page 465.
35. Eberthella belfastiensis, Ibid, pages 465 and 466.
36. Eberthella pyogenes, Ibid, page 466.
37. Eberthella tarda, Ibid, pages 466 and 467.
38. Eberthella bentotensis, Ibid, page 467.
39. Eberthella œdematiens, Ibid, pages 467 and 468.
40. Eberthella enterica, Ibid, page 468.
41. Eberthella dubia, Ibid, pages 468 and 469.
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ABSTRACTS

WEIL'S DISEASE: A CLINICAL AND EPIDEMIOLOGICAL REPORT OF FOURTEEN CASES: B. S. Lester, G. A. Denison, L. C. Posey and G. M. Tate. Southern Med. Jr., vol. 35, No. 4, Apr., '42, p. 325.

Laboratory findings on nine hospitalized cases were: Icterus indices from 23-129, N. P. N. determinations done on 4 cases varied from 62-200 mg. %, Blood Wassermann was positive in one and negative in 6, WBC ranged from 10,600-27,700 per cmm. Varying degrees of acute hemolytic anemia were present. Albumenuria varied with the severity of the case. RBC, WBC and casts corresponded with the albumen and bile was present. The agglutination titre in one instance increased from 1:3000 in the first week to 1:100,000 by the eighth.

The only environmental feature common to all these patients was employment in the same coal mine and more especially in the type of work that involved standing in water.

Bacterial examination of a portion of the rat population of the mine gave 11 positives to 57 negatives. An extermination program was rigidly enforced and no further human cases have become evident.

AN ACCURATE METHOD FOR THE DETERMINATION OF BLOOD UREA NITROGEN BY DIRECT NESSLERIZATION: C. J. Gentzkow, Jr. Biol. Chem., vol. 143, No. 2, Apr., '42, p. 531.

Potassium persulfate and potassium gluconate solutions are added to Folin-Wu Nessler's solution prior to the Nesslerization to bring about a color stable for 1 hour or longer. 5cc. of oxalated blood are required and the protein is precipitated after treatment with urease.

A new distillation technique is also described sufficiently accurate for 0.5 cc. whole blood.

BOOK REVIEWS

THE COAGULASE TEST FOR STAPHYLOCOCCI AND ITS CORRELATION WITH THE RESISTANCE OF THE ORGANISMS TO THE BACTERICIDAL ACTION OF HUMAN BLOOD: W. W. Spink and J. J. Vivino, Jr. Clin. Inves., vol. 21, No. 3, May, '42, p. 353.

One loopful of organisms from a 24 hr. agar slant was transferred to 0.5 cc. citrated human plasma and the tube incubated in a 37°C. water bath. The pressure of coagulum at the end of 3 or 18 hrs. indicated a positive test.

All but one of 32 strains isolated from patients having severe infections were coagulase-positive. These organisms were also found to resist the bactericidal effect of human defibrinated blood while the coagulase-negative strains were usually killed in large numbers.

Not all coagulase-positive strains are pathogenic and not all coagulase-negative strains are non-pathogenic but the exceptions are infrequent enough to make the test a valuable aid in differentiation.

Repeated subculturing lessens the reliability of the reaction.

THE 1941 YEAR BOOK OF PATHOLOGY AND IMMUNOLOGY. Pathology edited by Howard T. Karsner, M.D., Professor of Pathology, Director of the Institute of Pathology, Western Reserve University, Cleveland. Immunology edited by Sanford B. Hooker, A.M., M.D., Professor of Immunology, Boston University School of Medicine; Member, Evans Memorial for Clinical Research and Preventive Medicine; Immunologist, Massachusetts Memorial Hospitals. Pp. 623. The Year Book Publishers, Inc., 304 South Dearborn Street, Chicago. Ill. Price $3.00.

The Year Book Series has been of inestimable value to all who are allied with medicine in its various branches. This newcomer to the series serves as a liaison between the pathology laboratory, the operating room and the medical clinic, between the immunologist and the general practitioner, public health worker and industrial

physician. It contains a wealth of information boiled down to the essentials. Immediate applicability to clinical and bedside problems can be found in almost every subject. Those acquainted with other publications of the Year Book Series will find this one on pathology and immunology a valuable addition to their collection.

TEXTBOOK OF CLINICAL PARASITOLOGY, including laboratory identification and technic by David L. Belding, M.D., Professor of Bacteriology and Experimental Pathology, Boston University School of Medicine; Member of Staff of Evans Memorial and Massachusetts Memorial Hospitals. 890 pages, 1356 illustrations on 279 figures and 82 illustrations on 4 full page color plates. Published 1942 by D. Appleton-Century Company, Inc., 35 West 32nd Street, New York. Price $8.50.

This new and authoritative text is most timely. With populations shifting in the present world conflict the recognition, prevention and treatment of disabling or fatal parasitic diseases in both the civilian population and the armed forces assume great importance. It has been claimed that more persons the world over have been affected by parasitic diseases and that more deaths have resulted from them yearly than from all bacterial infections. This new text provides physicians in civilian practice, the armed services and the public health services with authoritative and urgently needed information on protozoan, helminthic and anthropod parasites of man and the practical aspects of the pathology, diagnosis, treatment and prevention of the diseases they produce. The seven sections include general parasitology, the protozoa, the nemathelminthes or round worms, the cestoidea or tapeworms, the trematoda or flukes, the anthropoda and a section on the technical methods for the diagnosis and treatment of parasitic infections. The text is featured by its concise morphological descriptions; by the complete coverage of the aspects of immunity and epidemiology; the emphasis placed upon diagnosis, treatment and prevention; and easily consulted charts and tabulations grouping closely allied parasites for a comparison of their morphological and pathological activities. The author's style of writing is distinctly Oslerian.

NEWS AND ANNOUNCEMENTS

PRESIDENT'S ADDRESS BEFORE AMERICAN SOCIETY OF MEDICAL TECHNOLOGISTS

By L. O. RAY, M.T.
Orlando, Florida

My Friends and Associates—Salutations:

To have been chosen President of this organization is a great honor. It has been a genuine pleasure to have served you in this capacity and I shall always cherish this manifestation of your confidence. This moment affords an opportunity to acknowledge my obligations and gratitude to those who have cooperated with us in our sincere efforts to serve our generation.

Meetings like this one serve many excellent purposes. They provide the opportunity for renewal of friendships, for interchange of ideas, for the taking of inventories of those abstract possessions which can be neither bought nor sold. Our task today is to achieve perspective, for we are told, "The young have aspirations that never come to pass; the old have recollections of things that never happened."

People representing a common interest, and those seeking to promote unity of action, often find it desirable, for personal stimulation and for a revival of waning interests, to study their problems.

The Lions, Kiwanis and Rotary illustrate this, as do state and federal meetings of the teaching profession, of physicians, and even of housewives. Hundreds of gatherings of this sort testify to the generally accepted idea of the benefit to be derived from the association of groups having a common cause. The result is physical rejuvenation, mental stimulation, and renewed courage.

The Scripture story of the annual gatherings of the Children

of Israel is a familiar one. From Dan to Beersheba, they came to some central site, once, twice, or even three times a year. It was these comings-together that maintained their oneness of purpose and inspired courage to meet difficulties.

The persistence of these gatherings emphasizes the inevitable conclusion that there must be something of value in the concept.

The business of the scientist is to seek for truth and having discovered it, turn it to practical account. It is summed up in the three words: searching, finding, and applying. The career of a physician parallels that of the scientist.

The quest comes first: Paralleling the testimony of the scientist the physician says, "I sought, I found, I applied."

The medical profession is one of the noblest of human callings. It has been so regarded in most countries through the centuries.

In no field has greater progress been made during the past half century than in the practice of medicine in its many branches. The increase in scientific knowledge of the human body has been marvelous, and the understanding of the cause and cure of many diseases has made tremendous strides.

More and more as we struggle for higher aims, I see the truth of what John Stuart Mill so beautifully said:

"All the grand sources of human suffering are in a great degree, many of them almost entirely, conquerable by human care and effort, and though their removal is grievously slow, though a long succession of generations will perish in the breach before the conquest is completed, yet every mind, sufficiently intelligent and generous to beat a part, however small and inconspicuous—will draw a noble enjoyment from the contest itself which he would not for any bribe in the form of selfish indulgence, consent to be without."

Some of you will recall reading in your histories of "Appleseed Johnny" the man who, years ago, journeyed through what was then the Far Western Country, planting as he went the seeds of apples he had saved for that purpose; and many have partaken of the fruit of the trees planted by him.

In our own way we are planting trees, not necessarily for our own benefit and enjoyment, but that they may cheer by their lovely blossoms and sustain by their luscious fruit, the travellers on their

way across the continent of Life. I am one of the travellers on this trail, and with the help of my fellow-men and fellow-women have reaped benefits from those who have gone before, making wide the pathway, smoothing the inequalities and planting their trees. To them you and I owe a debt of gratitude. To them you are making a partial payment on that debt by your loyalty to this organization.

I Thank You!

MINUTES OF THE HOUSE OF DELEGATES SESSION, JUNE 9, 1942

Benjamin Franklin Hotel, Philadelphia, Pennsylvania

The House of Delegates of the American Society of Medical Technologists met in executive session on Tuesday, June 9, 1942, at 2:45 p.m. at the Benjamin Franklin Hotel in Philadelphia, Pa. Mr. L. O. Ray, president, in the chair, Mrs. Mary Leisman Childress, secretary.

It as moved by Miss Marion Baker, seconded by Miss Cecelia Korteum that we dispense with the reading of the minutes of the last meeting and approve them as published in the Journal. Motion carried.

The following reports of Officers and Committees were read:

Report of the Journal, Membership, etc., by Mr. Conlin.

Report of the Treasurer also read by Mr. Conlin.

Report of the Advisory Board by Miss Henrietta Lyle.

Report of the Exhibits Committee by Miss Baker.

Report of the Publicity Committee by Mr. Fitzgerald.

Report of the Awards Committee and meeting of the Advisory Committee with the Board of Registry by Mrs. Jardine.

It was moved by Miss Lyle, seconded by Miss Dorothea Zoll that the reports of the committees be accepted as read, and that the future Awards Committees guide themselves in the selection of papers and exhibits to receive awards by the provisions in Mrs. Jardine's report. Motion carried.

Mr. Fitzgerald moved, Mr. Herring seconded, that we give a rising vote of thanks to Miss Baker for the outstanding work done by the Exhibits Committee.

It was moved by Miss Baker and seconded by Miss Korteum that the American Society of Medical Technologists reaffirm its favorable stand toward securing commissions for Medical Technologists in the Medical Corps of the Armed Forces, and that an organization be set up to work toward that end, taking up where the New Jersey Society is leaving off. Mr. Fitzgerald recommended that the motion be lost because the Army and Navy Medical Corps has no intention of using civilian technologists any longer than necessary as proved by reports from responsible men in those organizations. Mrs. Jardine agreed that we should reaffirm our stand but could not see how it would be possible for us to consent to bring into our organization a project started by another group. Miss Korteum expressed the opinion that we suffered a great lack of prestige because we were not given the proper recognition by the American Red Cross. Mr. Conlin said that we had already expressed in a formal resolution to the National Red Cross and others our willingness to serve, etc. Although we had not received any recognition for our efforts, this motion was a duplication of effort to the resolution of last year. Miss Korteum said that we could force ourselves to the attention of the proper authorities by lobbying to get a bill passed by Congress that would give us commissions. Miss Lyle commented that we could never raise the tremendous sums necessary to lobby for anything. Motion lost.

No report was submitted by the Nominating Committee, however, Mr. Conlin read the list of nominees that had been supplied to him for the printing of the ballots.

President-Elect—Rose Matthaei and Cora L. Miller.

Recording Secretary—Elizabeth O'Connor and Elta Rosenau.

Board of Directors—Sister Edeltrude, Margaret Morse, Elizabeth Pitsch, and Dorothea Zoll.

Advisory Board—Cecelia Korteum, Lawrence Ray.

Since there was some uncertainty as to whether or not the con

sent of the various nominees had been obtained, and also since some of the candidates were unknown to the delegates, the identity, qualifications, etc., of the nominees were discussed. The following nominations were made from the floor:

Miss Mary Eichman, Pennsylvania. for Recording Secretary, by Mr. Fitzgerald, seconded by Elizabeth Mitchell.

Mr. Fitzgerald, Maine, for Board of Directors, by Miss DeShazo, seconded by Miss Korteum.

Miss Lyle moved, Miss Zoll seconded, that nominations be closed. Motion carried. Mrs. Jardine, Miss Lyle and Miss DeShazo were appointed tellers. Result of the election as follows:

President-Elect—Miss Rose Matthaei, Houston, Texas.

Recording-Secretary—Miss Mary Eichman, Philadelphia, Penn.

Board of Directors—Mr. John Fitzgerald, Portland, Me.; Miss Dorothea Zoll, Philadelphia, Penn.

Advisory Board—Mr. L. O. Ray, Orlando, Fla.

Mr. Conlin moved that during the illness of Sister Jeanette, the Chairmanship of the Advisory Board be taken over by Miss Lyle. Seconded by Miss Korteum, motion carried.

The next business was the selection of the Nominating Committee for the next year. The following nominations were made:

Mr. Louis Herring by Mr. Fitzgerald. Seconded by Miss Zoll. Mr. Herring withdrew.

Mrs. Claryce Pitts by Mr. Fitzgerald. Seconded by Miss DeShazo.

Miss Cecelia Korteum by Miss Marks. Seconded by Miss Dawson.

Miss Doris Griffith by Miss Korteum. Seconded by Miss Autrey.

Mr. Fitzgerald moved that nominations be closed and those three constitute the nominating committee for the coming year. Seconded by Miss Lyle, motion carried.

Mr. Herring moved that the meeting adjourn, seconded by Miss Zoll, motion carried. The meeting adjourned at 5:25 p.m.

Mary B. Leisman Childress, M.T.,
Recording Secretary.

REPORT OF THE AWARDS COMMITTEE

Philadelphia, 1942

The work was completed, as requested, before the opening of the convention. The banquet will disclose the decision made. As is customary the committee included two pathologists and one technician. The Pathologists were Dr. Jamse McNaught of Stanford University, California, and Dr. Roy Kracke of Emory University, Georgia.

As chairman, I wish to recommend to the House of Delegates certain points that should be made to guide this committee and those presenting papers. We have no information with which to work other than to choose the three best papers. Much time is spent by the committee each year forming common points to be observed in the grading. Other chairmen have previously suggested some of these points and asked for guidance. I wish to present these points to you in definite form and I ask that you have them placed in the records for the guidance of the awards committee and those presenting papers.

1. MATERIAL CONTENT: Which interpreted shall mean the weighing of the value of the information presented to the field of science. Any technique involved shall be of a standard acceptable in the scientific field. It shall be the original work of the technologist.

2. CONSTRUCTION: A paper shall be clear, concise, and all references to the literature accurately arranged in a bibliography. It shall be corrected as regards grammatical construction that it may go directly to the press if considered of sufficient value. There shall be no references made to a commercial product that could be interpreted or used as an advertisement.

3. PRACTICAL USEFULNESS TO THE FIELD OF MEDICAL TECHNOLOGY: Should there occur severe breaches of the above points the awards committee may send the paper in question to the advisory committee at whose discretion the paper may be either approved or removed from the program.

The above was moved and seconded as read and placed at the disposal of future committees.

PRIZES AWARDED AT BANQUET, JUNE 10, 1942

Gold—"An Unrecorded Member of the Genus Eberthella"—Louis Herring, Orlando, Florida.

Silver—"Cryochem Process in the Laboratory"—Mollie Hill, Aspinwall, Pennsylvania.

Bronze—"The Weltmann Serum Coagulation Reaction, Comparison with the Sedimentation Rate"—Marian Baker, Newark, New Jersey.

Honorable Mention—"Triatoma Heidemanni as a Possible Vector of Relapsing Fever"—Thelma DeShazo, Austin, Texas.

PRIZES TO EXHIBITORS NOT AWARDED BY THIS COMMITTEE

1. "The Preparation of Plasma"—District of Columbia—Mary Sproul.

2. "Micro Viewing Box Rapid Sputum Suction Apparatus"—Max Lowenthal, Montclair, New Jersey.

Note: All medals were silver, with suitable finish, due to metal shortage caused by the war.

The award of $50 given by the A.S.C.P. was forfeited due to the failure of the committee to know of its existence until too late.

Respectfully submitted,

Evelyn Jardine, M.T.,
Chairman of Awards Committee.

ANNOUNCEMENT OF FELLOWSHIPS IN MEDICINE AND PUBLIC HEALTH

Offered by the Commonwealth Fund of New York Through the Pan American Sanitary Bureau

The Commonwealth Fund of New York, a philanthropic foundation established in 1918 by the late Mrs. Stephen V. Harkness,

EVELYN N. JARDINE, M.T. (A.S.C.P.)
President

ROSE MATTHAEI, M.T. (ASCP)
President-Elect

SCIENTIFIC AWARD EXHIBITS. PHILADELPHIA CONVENTION. JUNE. 1942

announces that it is offering through the Pan American Sanitary Bureau fifteen fellowships for one year's study of public health subjects or postgraduate medical courses to properly qualified persons who are citizens of the other American republics. Fellowships in public health will be open to physicians, sanitary officers, technicians, public health nurses, etc. These fellows will be selected through a system of cooperation with medical and health authorities of the different countries concerned, and whenever deemed advisable they will be interviewed by traveling representatives of the Pan American Sanitary Bureau. Each fellowship will provide living allowances while the holder is in the United States, travel costs, and tuition. Knowledge of the English language will be among the requirements, and also the possession of certain specific qualifications.

The Pan American Sanitary Bureau, the international health agency of the American republics, has been for some time the recognized clearing house for medical and public health fellowships in the United States, nearly 100 Latin Americans now being in the United States under its auspices.

Application blanks giving complete information will be available through the Commonwealth Fund, 41 East 57th Street, New York; the Pan American Sanitary Bureau, Washington, D. C.; or chiefs of American Missions in Latin America.

INSTITUTIONS RECEIVE CHECKS TO CARRY ON FIGHT AGAINST INFANTILE PARALYSIS

Checks totaling $325,844.25 have been forwarded to 26 institutions in various parts of the United States and Canada to carry on virus and after-effects research work and education in the fight against infantile paralysis, according to an announcement made by Basil O'Connor, president of the National Foundation for Infantile Paralysis, Inc.

The National Foundation for Infantile Paralysis, Inc., leads, directs and unifies the fight against infantile paralysis by means of its research, epidemic and educational programs. It also provides medical, nursing and hospital care and orthopedic appliances for needy victims of the disease through its more than 2,400 Chapters.

The funds which make possible the Foundation's programs are raised annually in January during the various Celebrations of the President's Birthday. The grantees and the amount of each grant follow:

For After-Effects Research

The State University of Iowa, College of Medicine, Iowa City, Iowa	$11,200.00
University of Rochester, School of Medicine and Dentistry, Rochester, New York	9,200.00
University of California, Medical School, San Francisco, California	5,050.00
The Children's Hospital, Boston, Massachusetts	4,250.00
Massachusetts General Hospital, Boston, Massachusetts	4,200.00
Michael Reese Hospital, Chicago, Illinois	3,000.00
University of Toronto, School of Hygiene, Toronto, Canada	1,000.00
N. Y. Society for the Relief of the Ruptured and Crippled, New York, New York	1,000.00
University of Southern California, School of Medicine, Department of Anatomy, Los Angeles, California	890.00

For Virus Research

The Johns Hopkins University, Baltimore, Maryland	$59,244.00
University of Michigan, School of Public Health, Ann Arbor, Michigan	40,000.00
University of Minnesota, The Medical School, Minneapolis, Minnesota	13,255.25
Michigan Department of Health, Lansing, Michigan	13,210.00
University of Wisconsin, Madison, Wisconsin	12,200.00
Connaught Laboratories, University of Toronto, Toronto, Canada	10,860.00
University of Michigan, Ann Arbor, Michigan	7,000.00
University of Chicago, Chicago, Illinois	6,090.00

Wayne University, College of Medicine, Detroit, Michigan	4,700.00
National Institute of Health, Bethesda, Maryland	3,500.00
University of Pennsylvania, Philadelphia, Pennsylvania	2,500.00
Harvard Medical and Surgical Research Laboratory, Boston City Hospital, Boston, Massachusetts	1,500.00

For Education

Georgia Warm Springs Foundation, Warm Springs, Georgia	$50,120.00
National Organization for Public Health Nursing, New York, New York	31,100.00
National League of Nursing Education, New York, New York	16,000.00
Harvard Infantile Paralysis Commission, Boston, Massachusetts	5,000.00
Frances Payne Bolton School of Nursing, Western Reserve University, Cleveland, Ohio	9,775.00

Minnesota

The Fifth Annual Convention of the Minnesota Society of Medical Technologists was held in Rochester, Minnesota, in connection with the Nineteenth Annual Convention of the Minnesota Hospital Association, which convened from May 24th through May 26th. The medical technologists concentrated their convention activities on Sunday, May 24th, at the Mayo Clinic and at St. Mary's Hospital. The program for the day was as follows:

10:00 A.M.—Business meeting at Plummer Hall, Mayo Clinic.

At this time the following slate of officers were elected:

President-Elect—Dorothy Schommer, St. Paul, Minnesota;
Vice-President—Vivian Larsen, Minneapolis General Hospital.
Secretary—Esther Wilbrecht, New Ulm, Minnesota.
Treasurer—Eleanor Egelston, Minneapolis General Hospital, Minneapolis.

Advisory Board—New Members: Alice Hansen, Miller Hospital, St. Paul—term expires 1945; Sr. M. Alcuin, O.S.B., St. Mary's Hospital, Duluth—term expires 1943.

The incumbent for the president's chair for 1942 was Mrs. Martha Strolberg, St. Barnabas Hospital, Minneapolis, Minnesota.

12:00 Noon—Complimentary luncheon at St. Mary's Cafeteria, St. Mary's Hospital.

1:30 P.M.—Scientific meeting: Room G-20 of St. Mary's Hospital.

Speakers: Dr. A. H. Sanford, presiding.

Dr. G. G. Stillwell, Clinical Pathologist at the Mayo Clinic: "Rh Factor."

Dr. Andries L. Roodenburg, formerly of University of Am sterdam (now at Mayo Clinic): "New Methods for the Investigation of Kidney Function."

Dr. J. F. Drapiewski, formerly of Harvard University (now at Mayo Clinic): "Prothrombin Determinations."

3:30 P.M.—Tour of St. Mary's Hospital.

The tour of the hospital lasted two hours at which time the medical technologists had an opportunity to visit the research laboratories constructed in the new wing of the hospital just recently completed. Many of the tests carried out there are in view of aiding defense science and are under the immediate supervision of the doctors of Mayo Clinic and performed by members of the medical technology profession in the employment of the Mayo Clinic. Among some of the very interesting works were projects directly connected with balanced diets and the metabolism of minerals, vitamins and in some instances enzymes; the pH of the duodenum; energy metabolism and altitude and such based on immunological principles. An extensive study of the Rh factor had recently been completed in these laboratories and the relation of this factor to "reactions" following blood grouping clarified.

In the transfer of Sr. M. Edeltrude, C.S.J., from St. Joseph's Hospital, St. Paul, to St. John's Hospital, Fargo, Minnesota loses

one of its most active members and a worthy pioneer in the organization of the Minnesota Society of Medical Technologists. In appreciation of her splendid work, the convention went on record for forwarding thanks and compliments both in word and gift.

Pennsylvania

The Pennsylvania Society of Medical Technologists and Laboratory Technicians held its annual Business Meeting on May 11th at Lankenau Hospital. Officers for the ensuing year are as follows: President, Mary Eichman, M.T.; President-Elect, Doris Bradway, M.T.; Corresponding Secretary, Elsa R. Lynch, M.T.; Recording Secretary, Mary Jane Cady, M.T.; Treasurer, Dorothea Zoll Schwager, M.T. Members of the Honorary Advisory Board for the ensuing year are Dr. Stanley P. Reiman and Dr. Russell Richardson.

During the past year, regular monthly scientific meetings were held at the Philadelphia County Medical Society. A supper meeting in April was held at the Graduate Hospital of the University of Pennsylvania. The Ninth Annual Banquet was held in November. Dr. John A. Kolmer was guest speaker.

Texas

Program of the 10th Annual Convention of the Texas Society of Medical Technologists held May 9, 10, 11, 1942, at Texas State Hotel, Houston, Texas.

SATURDAY, MAY 9

9:00-10:00—Registration.....Mezzanine Floor, Texas State Hotel

MORNING SESSION

Claryce Pitts, M.T., Presiding
(President, Texas Society of Medical Technologists)

10:00-11:00—Invocation.....Dr. E. W. Mitchell, Oaklawn Presbyterian Church, Houston, Texas

Welcome—Jane Dreyer, M.T., President, Harris County Society of Medical Technologists.

Response—Will Ann Staude, M.T., President-Elect, Texas Society of Medical Technologists.
President's Address.
Short Business Session.
Announcements.

11:00-11:30—"Simple, Useful Tissue Staining Technic for the Pathology Laboratory, Beryl Brewer, M.T., Galveston, Texas.

11:30-12:00—Motion Picture: "Pernicious Anemia"—Courtesy Lederle Laboratories.

12:30—Smorgasbord Luncheon.....Lamar Hotel

Ruth Guy, M.T., Presiding
(Secretary, Texas Society of Medical Technologists)

Speaker—Dr. A. H. Braden, St. Joseph's Infirmary, Houston, Texas.

AFTERNOON SESSION

Jane Dreyer, M.T., Presiding
(President, Harris County Society of Medical Technologists)

2:00- 3:00—"Symposium Hematology," Dr. M. A. Zionts, Houston, Texas.

3:00- 3:30—"Laboratory Procedures in a General Hospital," Sister M. Stella O'Sullivan, M.T., Amarillo, Texas.

3:30- 4:30—"The Typhus Fevers," Dr. Ludwik Anigstein, Associate in Preventive Medicine and Public Health, University of Texas, School of Medicine, Galveston, Texas.

4:30- 5:00—"Bacterial Allergy," Ruth Harrison, M.T., Houston, Texas.

7:45—Play .....Community Players

SUNDAY, MAY 10

8:30—Breakfast.....Forum Cafeteria

MORNING SESSION

Florence Moore, M.T., Presiding

(Vice-President, Texas Society of Medical Technologists)

9:15-10:00—"A View of Hormone Chemistry," Dr. Eby Nell McElrath, Professor of Chemistry, University of Houston, Houston, Texas.

10:00-11:00—"Civilian Defense," Dr. W. B. Russ, Eighth Regional Medical Officer, San Antonio, Texas.

11:00-11:30—"Some of the Factors Effecting the Serodiagnostic Tests for Syphillis," Mr. Kinch Knolle, State Health Department, Austin, Texas.

AFTERNOON SESSION

To Be Held at Rice Institute

2:00- 3:00—"Diagnosis of Worm Infestation," Dr. Asa C. Chandler, Professor of Biology, Rice Institute, Houston, Texas.

3:00- 4:30—Demonstrations of Ova and Parasites—Rice Institute, Directed by Dr. Chandler.

4:30—Drive to San Jacinto Battleground.

8:00—Banquet.....San Jacinto Inn

MONDAY, MAY 11

MORNING SESSION

Will Ann Staude, M.T., Presiding

(President-Elect, Texas Society of Medical Technologists)

9:00- 9:45—"Plasma Bank," Dr. L. E. Rosenblad, Professor of Biology, University of Houston, Houston, Texas.

9:45-10:30—Study Groups on Serology, Chemistry, Bacteriology, and Hematology.

10:30 11:00—"Medical Technology, Where to," Clara Becton, M.T., Fort Worth, Texas.

11:00-11:30—"The Diagnosis and Treatment of Brucellosis," Dr. J. W. Torbett, Sr., Torbett Clinic and Hospital, Marlin, Texas.

12:30—Luncheon.....Texas State Hotel

Margaret Davis, M.T., Presiding

Speaker—Dr. J. L. Goforth, St. Paul's Hospital, Dallas, Texas.

AFTERNOON SESSION

Claryce M. Pitts, M.T., Presiding

2:00- 3:00—"Tuberculosis in Children," Dr. Chester A. Stewart, University of Louisiana School of Medicine, New Orleans, Louisiana.

3:00- 5:00—Business Session.

5:00—Adjournment.

The following officers were elected for the ensuing year:

President.....Dorothy Hall, Dallas
President-Elect.....A. H. Nagy, Sanatorium
Vice-President.....Thelma DeShazo, Austin
Secretary.....Jane Dreyer, Houston
Treasurer.....Margaret Davis, Austin